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Unexploded Ordnance

Introduction

Eglin Air Force Base is the largest air force base in the free world, including 724 square miles of land area and about 130,000 square miles of controlled airspace overlying land and water. In this setting, Eglin conducts its primary mission of full-service air armament development through weapons system research, development, testing and evaluation; training; space operations; and base and range support. While fulfilling its mission, Eglin also manages its natural resources acting as a steward to protect plants and animals for future generations.

Eglin personnel routinely test weapon or munition systems such as bombs, guided and unguided missiles, and guns. In order to minimize the hazards associated with testing, inert versions (versions with the explosive components removed) of these systems are used whenever possible. However, even an inert version has a "spotting charge," which does explode, and can be hazardous. Testing of "live" munitions is often required in order to verify a weapon's performance or effectiveness. The vast majority of live systems function as designed. When they do not, they are referred to as unexploded ordnance, or UXOs for short. *Ordnance* is a general word for military equipment that includes weapon systems, ammunition, and vehicles such as tanks or armored personnel carriers.

Eglin has strict safety policies and procedures in place to minimize the risk posed by unexploded ordnance to personnel. No injuries are known to have occurred to the public as a result of UXOs. However, UXOs can pose a danger to the people involved in testing; personnel must sometimes enter potentially hazardous test areas to set up targets or instrumentation in support of a test. The task of managing the risks posed by UXOs belongs to Eglin's Explosive Ordnance Disposal (EOD) team.

Weapons/UXOs at Eglin	Examples
Unguided Munitions—Submunitions. *Most common UXO at Eglin* • Used to strike a number of individual subtargets within an area • Also used to strike a target whose exact location is not known	BLU-97—3.4 lbs. Explosive submunitions. BLU-91 Gator—4.3 lbs. Anti-tank submunitions.
Air Intercept Missiles (AIM) • Used to intercept enemy aircraft	AIM-9L, Sidewinder—9 ft., 5 in. long, 191 lbs.
Air to Ground Missiles (AGM) • Launched from air to attack ground positions	AGM-129A, Advanced Cruise Missile—12 ft., 10 in. long, 3,600 lbs. AGM-130, Powered Standoff Weapon—156 in. long, 2,980 lbs.
Surface-to-Air Missiles (SAM) • Used to attack aircraft from ground	Stinger—5 ft. long, 34.5 lbs.
Air to Surface Rockets • Used for air-to-ground attack	2.75 in. Folding Fin Rocket—Unguided rocket stabilized by fins. Can be used with multiple warheads, including high explosive warheads and anti-tank warheads.
Unguided Munitions—Bombs • Used to strike fixed targets	MK-82—7.5 ft. long, 531 lbs. General purpose bomb, explodes on contact. MK-84—10 ft., 9 in. long, 2,000 lbs. General purpose bomb.

BLU-91/B

EOD is a group of military professionals who have been thoroughly trained to safely deal with UXOs. EOD personnel are instructed on the construction and function of a variety of weapon and munition systems. They receive training on the explosive, electronic, power, or propulsion components that may make up these systems, and are taught to recognize, disarm, or destroy any potential UXOs.

Test Area Operations

Eglin has extensive areas reserved for weapons testing. The presence, and number, of UXOs on any one of these test areas usually depend on the type of weapon that has been tested there. Generally, testing of ì liveî ordnance is done only at specially designated test areas, in order to avoid ì contaminatingî cleaner test areas with UXOs. For example, submunitions are usually released over test areas that have a hard surface such as compacted earth, asphalt, or concrete. This makes the submunition easier to find and remove once testing is completed.

Most test areas undergo a cleanup either once every 6 months or once a year. During cleanup, EOD personnel thoroughly inspect the surface of the test area for any debris (pieces of metal, electronics) or signs of UXOs. Test areas suspected of being heavily ì contaminatedî with UXOs are cleaned only when required by a given test. This is done in order to limit the danger to EOD personnel. If test support personnel need to enter these test areas, EOD will escort them on and off. If necessary, EOD will also clear a part of the test area where test personnel can safely set up targets or instrumentation.

Managing Risks From Unexploded Ordnance

Finding UXOs can be difficult. A general surface check often locates UXOs; however, some weapons can be buried deep in the soil. Even when the exact impact point of a bomb is known, its location underground may never be pin-pointed. (It is not unusual for a bomb to travel a great distance, in any direction, once underground). Weather conditions (rain, wind, etc.) or other testing may eventually bring these UXOs to the surface, contaminating an apparently previously clean test area. In addition, it is difficult to account for all the testing activities conducted at Eglin throughout its history. Some UXOs may still be buried from testing conducted as early as 1940. Therefore, Eglin personnel always exercise caution when operating on any of the test areas.

Equipment such as metal detectors, robots, and protective ì bomb suitsî are used routinely to find or deal with UXOs. Once a potentially dangerous item is found, EOD determines the best way to disarm it. The item may be removed to another location for disposal or it may be destroyed in place. To destroy it, a small amount of plastic explosive is placed next to the item and detonated from a safe distance. EOD will then verify that no dangerous components remain on the test area.

Sometimes it is necessary to determine why a weapon system did not function as designed. In these instances, EOD will recover the weapon and move it to a predetermined location where it can be safely disassembled and examined.

UXOs are an unavoidable by-product of weapons and munitions testing. However, Eglin's unsurpassed safety record in managing UXOs demonstrates its commitment to safety and the quality of its EOD team.